

U.S. Serial No.: 09/990,534

Amendment To The Claims:

1. (Currently amended) A method for improving video quality delivered to a display device, comprising:
 - encoding a current video signal segment to be decoded at the display device;
 - estimating, as part of said encoding step, a time required for decoding said video signal segment at the display device; and
 - if the estimated time exceeds a predetermined decoder time period selectively performing a step of ~~performing one of:~~
 - (a) ~~re-encoding said current video signal segment such that it can be decoded within said decoder time period;~~
 - (b) encoding a subsequent video signal segment to enable decoding thereof without reference to said current segment, ~~wherein whether to perform (a) or (b) is based on available processing time of said encoder.~~
2. (Currently amended) The method of claim 1, wherein the step of encoding a subsequent video signal segment is selected to be performed based on the available processing time of said encoder only ~~step (a) is performed.~~
3. (Currently amended) The method of claim 1, wherein a step of re-encoding said current video signal segment such that it can be decoded within said decoder time period is performed if the step of encoding a subsequent video signal is not selected only ~~step (b) is performed.~~

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4. (Original) The method of claim 1, wherein said estimating step models a decoder for said display device.
5. (Original) The method of claim 4, wherein said model uses components of said decoder that are also present in an encoder used for said current video signal segment encoding step.
6. (Original) The method of claim 5, wherein said estimating step uses existing motion estimation information obtained during said encoding step.
7. (Original) The method of claim 4, wherein said model estimates a number of memory accesses required to decode said current video signal segment.
8. (Original) The method of claim 4, wherein said model estimates a complexity of said current video signal segment.
9. (Original) The method of claim 4, wherein said model determines a number of compressed bits required by said current video signal segment.
10. (Original) The method of claim 4, wherein: said encoding step performs block transform coding; and said model monitors a number of blocks skipped during the block transform coding of said video signal segment.

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11. (Original) The method of claim 4, wherein: said encoding step performs block transform coding; the block transform coding provides different types of blocks; and said model monitors the number of different types of blocks provided during the block transform coding of said video signal segment.
12. (Original) The method of claim 1 wherein said display device is a synchronous display device.
13. (Original) The method of claim 1 wherein said video signal segment is part of a streaming video data stream.
14. (Original) A storage medium encoded with machine-readable computer program code for performing the method of claim 1.
15. (Currently amended) An apparatus ~~Apparatus~~ for improving video quality delivered to a display device, comprising:
an encoder for encoding a current video signal segment to be decoded at the display device,
said encoder being adapted to estimate a time required for decoding said video signal segment at the display device, and if the estimated time exceeds a predetermined decoder time period, said encoder selectively encodes ~~said encoder prevents a decoder error by encoding one of~~

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~~(a) said current video signal segment such that it can be decoded within said decoder time period;~~

~~(b) a subsequent video signal segment to enable decoding thereof without reference to said current segment, wherein whether to perform (a) or (b) is based on available processing time at said encoder.~~

16. (Currently amended) ~~The apparatus~~ Apparatus in accordance with claim 15, wherein said encoder always encodes said current video signal segment such that it can be decoded within said decoder time period.

17. (Currently amended) ~~The apparatus~~ Apparatus in accordance with claim 15, wherein if the estimated time exceeds said predetermined decoder time period, the encoder always encodes a subsequent video signal segment to enable decoding thereof without reference to said current segment.

18. (Currently amended) ~~The apparatus~~ Apparatus in accordance with claim 15, wherein said encoder models a decoder for said display device in order to estimate the decoding time.

19. (Currently amended) ~~The apparatus~~ Apparatus in accordance with claim 18, wherein said model uses components of said decoder that are also present in the encoder.

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20. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 19, wherein said estimating step uses existing motion estimation information obtained during said encoding step.
21. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 18, wherein said model estimates a number of memory accesses required to decode said current video signal segment.
22. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 18, wherein said model estimates a complexity of said current video signal segment.
23. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 18, wherein said model determines a number of compressed bits required by said current video signal segment.
24. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 18, wherein: said encoder performs block transform coding; and said model monitors a number of blocks skipped during the block transform coding of said video signal segment.
25. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 18, wherein: said encoder performs block transform coding; the block transform coding

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provides different types of blocks; and said model monitors the number of different types of blocks provided during the block transform coding of said video signal segment.

26. (Currently amended) The apparatus ~~Apparatus~~ in accordance with claim 15 wherein said display device is a synchronous display device.

27. (Currently amended) A system for improving the display quality of a video signal, comprising:

an encoder for encoding a video stream;

a decoder for decoding said video stream for display on a display device; and

a communication path for communicating the encoded video stream to said decoder; said encoder modeling said decoder to determine whether a time required for decoding a current segment of said video stream is likely to exceed a predetermined decoder time period allocated to said segment; wherein:

if said time period is likely to be exceeded, said encoder selectively encodes ~~will prevent an encoder error and encode one of:~~

~~(a) said current video signal segment such that it can be decoded within said decoder time period;~~

~~(b) a subsequent video signal segment to enable decoding thereof without reference to said current segment, wherein whether to perform (a) or (b) is based on available processing time at said encoder.~~

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28. (Currently amended) The [[a]] system in accordance with claim 27 wherein said communication path comprises a streaming video server.

29. (Currently amended) The [[a]] system in accordance with claim 27 wherein at least a portion of said encoder is contained in a transcoder for said video stream.